CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

This chapter provides a description of the proposed action and routing alternatives that are evaluated in this EA

2.1 PROPOSED ACTION

Reclamation has developed a seven-year construction schedule for the ALP Project, with completion of Ridges Basin Dam during Fiscal Year (FY) 2007 and initiation of filling of Ridges Basin Reservoir in FY2008. Federal funding for the first project year, FY2002, has been received by Reclamation. Construction activities in the form of planning and design have begun, but before construction can begin on the dam foundation, Reclamation has requested relocation of three pipelines that currently run through Ridges Basin. Pipeline facilities within the dam site area must be relocated to a different area and then the old pipelines removed and/or abandoned no later than August 2003 in order that Reclamation's construction schedule for the dam and reservoir be met. The three pipelines include: (1) a 26-inch-diameter natural gas transmission pipeline owned and operated by Northwest; (2) a 16-inch-diameter MAPCO NGL pipeline; and (3) a 10-inch-diameter MAPCO NGL pipeline. The two MAPCO pipelines parallel the Northwest pipeline route through Ridges Basin. Both Northwest and MAPCO are subsidiaries of Williams.

The portion of Northwest's 26-inch-diameter natural gas pipeline to be relocated is part of Northwest's existing Ignacio-to-Sumas natural gas transportation system. The portion of MAPCO's 10-inch and 16-inch-diameter pipelines to be relocated are a part of MAPCO's existing Rocky Mountain Natural Gas Liquids transportation system, which transports NGL's from natural gas production areas in the Rockies to markets in the mid-continent and Gulf coast regions. Northwest and MAPCO propose to abandon a total of 14.91 miles (4.97 miles for each of three pipelines) of existing pipelines within Ridges Basin, of which a total of 13.11 miles (4.37 miles for each of the three pipelines) could be abandoned in place and a total of 1.8 miles (0.6 mile for each of the three pipelines) removed. Portions of the pipelines to be removed lie under the proposed Ridges Basin Dam and outlet works. The section of pipelines to be relocated are situated approximately 2 miles southwest of Durango, Colorado.

2.1.1 New Pipeline Construction Proposed

Northwest and MAPCO propose to construct a total of approximately 12.9 to 20.7 miles of new pipeline (4.3 to 6.9 miles for each of three new pipelines) to replace their existing pipeline facilities through Ridges Basin depending on the route selected (the difference in length reflects two pipeline alternate routes). In order to maintain service to its customers, the new pipelines must be installed and connected to the respective systems before the existing pipelines can be taken out of service. The replacement pipelines would not increase the capacity of any of the three pipeline systems.

The Northwest pipeline would be installed in a permanent right-of-way 75 feet wide. The two new MAPCO pipelines would be constructed parallel to the Northwest pipeline in an adjacent 75-foot permanent right-of-way. The MAPCO pipelines would be separated 20 feet from each other and 20 feet from the Northwest line for the entire route, except for approximately 3,507 feet of Horizontal Directional Drill (HDD) boring plus transition areas (northern route only). Figure 2-1 shows the placement of the pipelines in the two adjacent rights-of-way. Figure 2-2 shows a typical pipeline construction sequence. Figure 2-3 shows the northern and southern route alternatives and associated Mile Posts (MPs).

Since the three pipelines would be constructed at the same time, in most instances the 150 feet of permanent right-of-way would be sufficient for construction activities. In some locations, additional temporary work space would be required to deal with steep terrain, side slopes, or other factors. Along the northern route, this temporary work space could be up to 40 feet in width and would total approximately 29.26 acres (see table 2-1). Along the southern route, this temporary work space could be up to 85 feet in width and would total approximately 44.30 acres (see table 2-1). ~~Up to 40 feet of temporary additional space may be required in places along the northern route alternative where greater access would be needed during construction; along the southern route alternative up to 85 feet of temporary additional space may be required in places.~~

2.1.2 New Meter Station

Northwest currently owns and operates a delivery tap to Greeley Gas Company (Greeley) where its 26-inch-diameter transmission pipeline crosses the Greeley natural gas distribution pipeline. Greeley currently owns and operates a meter station adjacent to the delivery tap. Northwest would relocate this delivery tap and a new meter station would be constructed to replace the existing Greeley meter station. The new meter station would likely be on a 100-foot by 100-foot fenced site, roughly half of which may be within Northwest's permanent operational right-of-way for the relocated pipeline. The new meter station would be located at approximately MP 2.34 on the relocated Northwest pipeline.

2.1.3 Disposition of Existing Pipelines

When the relocated Northwest and MAPCO pipelines are completed and tied-in, the corresponding 14.91 miles of existing pipelines would be abandoned. Approximately 13.11 miles of pipeline (4.37 miles for each of three pipelines) could be abandoned in place. About 1.8 miles of pipeline (consisting of 0.6 miles each of three pipelines) would be excavated and removed. After tie-in to the relocated pipelines is accomplished, the sections of existing pipelines to be abandoned would be cleaned to remove any residual liquids. The residual liquids would be captured and disposed of in accordance with appropriate environmental regulations. Prior to filling of the reservoir, the portions of the pipelines that are abandoned in place would be filled with water and capped to prevent buoyancy. The construction contractor will be instructed not to disturb those portions of the pipeline abandoned in place.

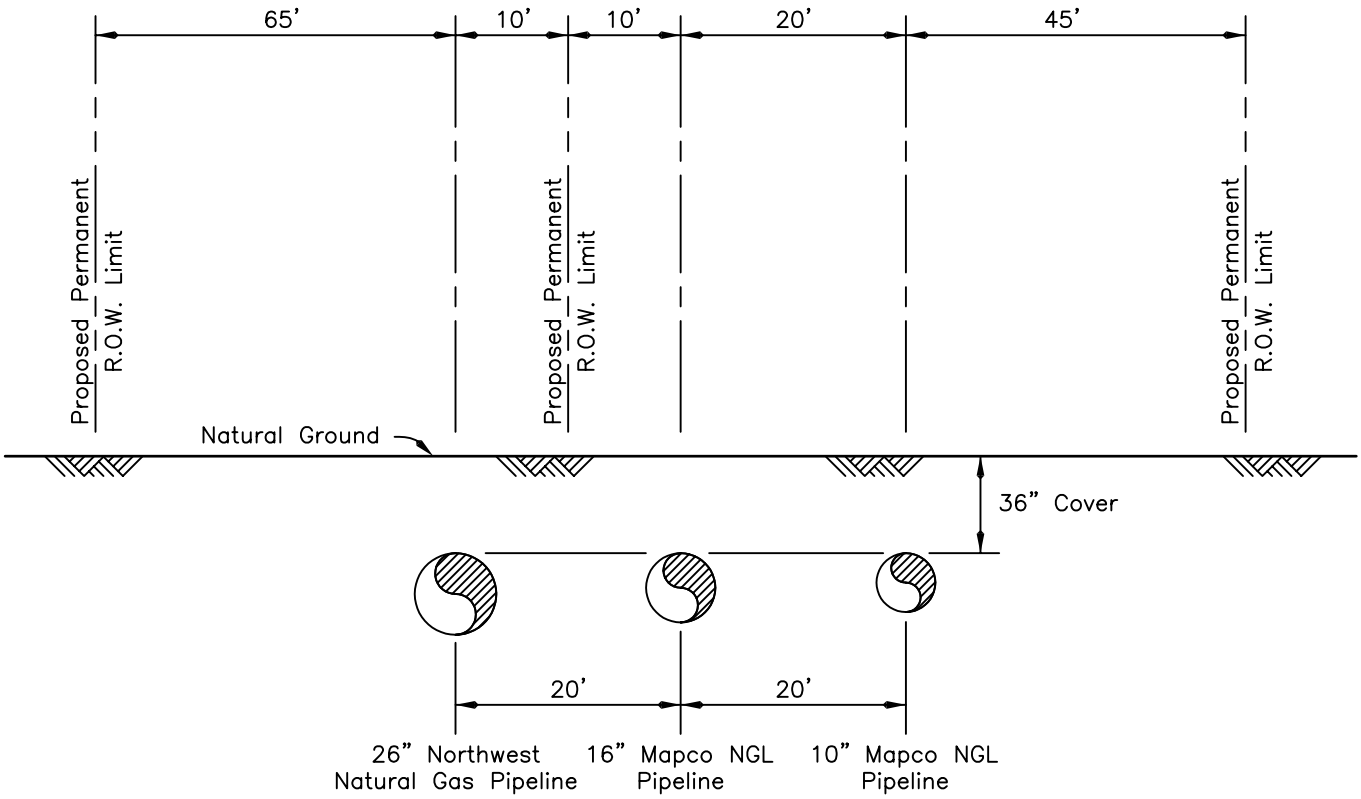
When Reclamation begins construction of the dam, additional sections of pipe may be removed as necessary for excavation of the dam foundation and borrow areas and construction of the coffer dam and diversion channel.

Several sections of Northwest's existing pipeline in the Ridges Basin area are coated with asbestos felt wrap. Appropriate abatement and disposal techniques would be used along any section of pipe coated with asbestos felt wrap that is removed from the trench. None of the existing pipeline that could be abandoned in place is coated with this material. No asbestos is present in either of the MAPCO pipeline coatings.

2.1.4 Pipeline Products Conversion and Pump Station

MAPCO proposes to convert the product carried in their 10-inch-diameter pipeline from NGL to petroleum products. This conversion was addressed in the FEIS for the Questar, Williams, & Kern River Pipeline Project (BLM 2001) prepared by BLM. MAPCO has not yet made a determination if this conversion will take place, or when. However, in anticipation that a conversion could take place at some point in the future, Reclamation completed a spill analysis and other evaluations to address the potential for the release of petroleum products in this EA. If MAPCO elects to move forward in the future to

convert its line to another product, Reclamation would conduct appropriate environmental compliance to determine that appropriate safeguards are provided for prior to such conversion at Ridges Basin.

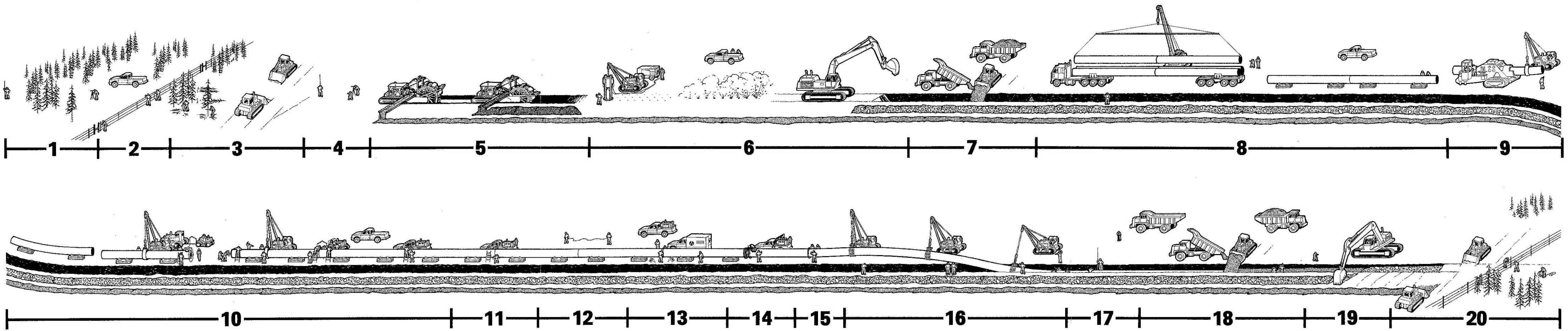


TYPICAL RIGHT OF WAY CROSS SECTION

N.T.S.

DRAWN BY: MANN	Williams	
APPROVED:		
DATE: 12-18-01	TYPICAL RIGHT OF WAY CROSS SECTION	FIGURE 2-1
SCALE: NONE	LA PLATA COUNTY, COLORADO	

PIPELINE CONSTRUCTION SEQUENCE



LEGEND

1 - Right-of-Way Acquisition and Survey

2 - Fencing

3 - Clearing and Grading

4 - Centerline Survey of Ditch

5 - Ditching (Rock-Free)

6 - Ditching (Rock)

7 - Padding Ditch Bottom

8 - Stringing

9 - Bending

10 - Line Up, Stringer Bead and Hot Pass

11 - Fill and Cap Weld

12 - As-Built Footage

13 - X-Ray and Weld Repair

14 - Coating Field and Factory Welds

15 - Inspection and Repair of Coating (Jeeping)

16 - Lowering In

17 - As-Built Profile Survey

18 - Padding Over Pipe

19 - Backfill

20 - Replace Topsoil and Cleanup

Figure 2-2

Northern and Southern Route Alternatives and Mile Posts

Click Here For Map (2.5 MB)

As part of this conversion, MAPCO proposed to construct a new Pump Station 533 located just west of the Ridges Basin Reservoir. The pump station would have disturbed 5 acres and would have included 2 natural gas turbine driver/product pump units with a combined 1,862 horsepower (hp). Subsequently, MAPCO moved the location of the proposed pump station to the northeast but no longer intends to build a pump station at this location. Additional regulatory review and approvals by Reclamation may be required prior to product conversion or construction of a pumping plant.

2.2 NO ACTION ALTERNATIVE

The purpose of the proposed project is to allow for the construction of the Ridges Basin Dam and Reservoir. If the Northwest and MAPCO pipelines were not relocated, these facilities would interfere with completion of the Ridges Basin Dam and the ALP Project. Further, the existing pipeline facilities would no longer be accessible for routine maintenance after the reservoir is filled.

2.3 ROUTING ALTERNATIVES

Several alternative routes have been considered for the relocation of the Northwest and MAPCO pipelines from the dam and reservoir area in Ridges Basin, and the most feasible routes selected (Reclamation 1999a, Reclamation 2000a, Mustang 2001). Two alternatives, a route around the north side of the reservoir (northern route) and one around the southern side of the reservoir (southern route) were developed as the most feasible of the several alternative routes that had been evaluated. The northern route extends from the south face of Carbon Mountain north and west along the ridge north of the proposed Ridges Basin Reservoir. The southern route extends up the east face of Basin Mountain and then west along the north face of Basin Mountain. This EA focuses on these two route alternatives and evaluates the potential environmental impacts associated with each. Following is a description of the two alternatives.

2.3.1 Northern Route

The proposed northern route is approximately 6.9 miles long (see figure 2-3). The route begins at a point on the existing pipeline right-of-way located in Section 7 Township 34 North Range 9 West, La Plata County, Colorado. From this eastern-most point of this route alternative, the alignment runs in a northerly direction up along a drainage area and extends up a narrow ridge on the south face of Carbon Mountain to a point approximately 535 feet below the crest of Carbon Mountain at approximately MP 1.0. Milepost 1.0 is the approximate proposed exit point for an HDD section that would cross through Carbon Mountain on a northwesterly alignment to an HDD entry point on the north slope of Carbon Mountain at approximately MP 1.6. The route continues in a northwesterly direction crossing several low ridges on the north face of Carbon Mountain to approximately MP 2.3 near County Road 211 (CR 211). The route crosses CR 211 and runs northwesterly along County Road 212 (CR 212) on the west side for a distance to approximately MP 3.0. At this point, the route crosses the county road and continues in a northwesterly alignment on the east side of the road to MP 3.3. The route then turns westerly at this location crossing the county road for a second time, to approximately MP 3.7. From this location, the route turns in a southerly direction to approximately MP 4.0, and then southwesterly to MP 5.5. From MP 5.5, the route runs in a westerly direction to approximately MP 6.4, and then in a southwesterly direction to the proposed west tie-in location at approximately MP 6.9. The proposed tie-in is located in Section 4 Township 34 North Range 10 West, La Plata County, Colorado.

Most of the northern route alternative, approximately 6.5 of the 6.9 miles, is located outside of the Ridges Basin drainage area. Much of the northern route traverses low ridges with minimal visibility from various locations around the Ridges Basin area. Approximately 3.9 miles of the northern route lies on Reclamation property and 3.0 miles on CDOW and La Plata County property.

2.3.1.1 Northern Route Topography

The east end of the northern route ties into existing pipelines where they cross a small alluvial fan adjacent to the access road. From there, the alignment skirts the west edge of the alluvial fan and climbs the south side of Carbon Mountain, keeping along ridge tops to the extent practical. The exit location for the proposed HDD is on the southeast flank of Carbon Mountain, about 535 vertical feet below its summit. The HDD entry point is directly north of the summit of Carbon Mountain, at an elevation of about 126 feet below the drill exit point. The alignment then extends to the northwest, adjacent to existing roads, before turning west and south along ridge tops. The last mile or so of the alignment at its west end skirts along the edge of the alluvial valley of Wildcat Creek before it crosses several small ridges to reach the west tie-in point.

Grades along the northern route vary considerably due to the variety of terrain and geologic conditions. In general, grades in or near valley bottoms and on ridge tops are relatively flat. Grades increase markedly where the alignment crosses gullies or ridges, and on the south side of Carbon Mountain. The northern route climbs along a series of ridge crests on the south side of Carbon Mountain, with grades occasionally as steep as 2(Horizontal):1(Vertical), although more typical grades are about 4:1. These ridge crests are often relatively narrow and steep-sided. Once the alignment emerges from the HDD exit point on the north side of Carbon Mountain, grades rarely exceed 5:1 and are generally much flatter. Approximately 3.5 miles of the alignment north and west of the UMTRA disposal cell follows gentle ridge tops with relatively flat grades. The northern route has few steep cross slopes. One cross slope of about 26 degrees occurs to the north of the HDD exit point, where potentially deep and/or unstable colluviums may exist.

All of the alignment south of Carbon Mountain is within a drainage basin that flows to Basin Creek downstream of the proposed Ridges Basin Dam. North of Carbon Mountain the northern route lies within drainage basins that flow to the north and east toward the Animas River, until the alignment crosses the Bodo Canyon Saddle, near the road intersection west of the power substation. North of this point, the alignment crosses the head of several drainages that flow to the west and south into Ridges Basin. Once the alignment reaches its north-most point, near a topographic high point of approximate elevation 7,450 feet, it generally follows the ridge crests, crossing the head of several broad drainages. A short portion of the west end of the northern alignment drops back into the Basin Creek drainage.

Most, but not all, of these drainages flow generally north to Wildcat Creek. Near its west end, the northern route lies immediately above the valley of Wildcat Creek. Leaving Wildcat Creek to the west tie-in point, it traverses several small drainages that flow to Basin Creek.

2.3.1.2 Northern Route Alignment Variation

A variation to the northern route that would have replaced the proposed HDD under the crest of the northern ridge of Carbon Mountain by traditional pipeline trenching and blasting was evaluated. This variation is not recommended due to geologic hazard issues along the alignment, as well as additional disturbance involved with blasting a trench through the rock. This alternative was discussed in more detail in the FSEIS (Attachment K, Volume II) (Reclamation 2000a).

2.3.2 Southern Route

The proposed southern route is approximately 4.3 miles long (see figure 2-3). The route begins at a point on the existing pipeline right-of-way located in Section 7 Township 34 North Range 9 West, La Plata County, Colorado. From this eastern-most point of the proposed route, the alignment runs in a southwesterly direction up the face of Basin Mountain to a point across the mountain crest and then in a westerly direction to approximately MP 1.1. The route then turns northerly crossing the Basin Mountain

crest and extending down the face of the mountain to approximately MP 1.2. This location places the proposed route back in the drainage area of Ridges Basin as it runs to approximately MP 3.7. The route then extends in a northwesterly direction to the proposed west tie-in location at approximately MP 6.9. The proposed tie-in is located in Section 4 Township 34 North Range 10 West, La Plata County, Colorado.

Most of the proposed southern route is located within the Ridges Basin drainage area. Only about 0.3 mile, from MPs 1.0 to 1.3, is located outside of the drainage area. Most of the southern route is located on the steep face of Basin Mountain and is visible from various locations around the Ridges Basin area. Except for a short section on Southern Ute Indian Tribe lands, the proposed southern route is located on Reclamation property.

2.3.2.1 Southern Route Topography

The east end of the southern route ties into the existing pipeline in the alluvial valley of Basin Creek. It immediately goes to the south crossing Basin Creek, and climbs along a broad drainage to a saddle on Basin Mountain near the east end of Basin Mountain's prominent ridgeline. The alignment follows the ridgeline for about 0.75 mile, and then drops down a steep gully (up to about 1.25:1 to less-steep (about 3:1) slopes below. The alignment then runs west and north just above the design elevation of the Ridges Basin Reservoir, to tie into the existing pipeline immediately northwest of the reservoir's upstream limit. The west end of Basin Mountain is an identified landslide area.

Where the alignment follows the ridge crest on Basin Mountain, it lies within drainage basins that flow to the south, toward Indian Creek. In all other areas, the alignment lies within drainage basins that flow north into the proposed Ridges Basin Reservoir, into Basin Creek at the eastern and western ends of the alignment.

2.3.2.2 Southern Route Alignment Variation

A variation to the southern route to avoid known geologic hazards and traverse more favorable geotechnical conditions was evaluated. A route variation that followed the north-trending ridge at the far west end of Basin Mountain would avoid most of the identified landslide areas. However, there is a potential for a landslide area on the east flank of this ridge crest. Additionally, keeping the alignment on the ridge crest for the full length of Basin Mountain would require additional encroachment on Southern Ute tribal land. This variation is not recommended for these reasons.

2.4 SPECIAL CONSTRUCTION AND OPERATING PROCEDURES

The new 26-inch-diameter natural gas pipeline would be designed, constructed, operated, and maintained in accordance with the U. S. Department of Transportation (DOT) regulations in 49 Code of Federal Regulations (CFR) Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards;" and other applicable Federal and state regulations. Construction of the new pipeline would generally follow standard pipeline construction methods. The FERC staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) would be implemented during all phases of construction. Reclamation, as the Federal land management agency, has adopted the Plan.

The new MAPCO 10-inch and 16-inch-diameter pipelines would be designed, constructed, operated, and maintained in accordance with DOT regulations in 49 CFR Part 195, "Transportation of Hazardous Liquids by Pipeline." No additional DOT approval is required by MAPCO.

No wetlands or perennial water bodies would be crossed by the relocated pipelines or are crossed by the sections of existing pipelines that would be removed along the northern route. The southern route would cross small areas of emergent wetlands at two locations along Basin Creek (see section 3.2.2) with minimal impacts to wetland systems. No special construction or operation procedures would be required for wetland or water body crossings. Several intermittent drainages would be crossed, however, and in the event that any drainage is flowing at the time of construction, Northwest would implement the FERC staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures). Reclamation, as the Federal land management agency, has adopted the Procedures. Reclamation would require the same level of care as required in the Plan and Procedures be taken by MAPCO in its construction in these areas. No special operational procedures are anticipated for the relocated pipeline beyond routine pipeline and right-of-way surveillance and maintenance.

2.4.1 Carbon Mountain Horizontal Directional Drill

Special procedures would be required along the eastern end of the northern route alternative where the pipeline would be installed through Carbon Mountain using the HDD method. Figure 2-4 shows details of the proposed drill entry and drill exit staging areas and related right-of-way information.

This segment is approximately 3,500 feet in length and bores through Carbon Mountain from a drill entry point on the north slope at approximately MP 1.6 to a drill exit point on the south slope at approximately MP 1.0. The elevation of the drill exit point is about 7,309 feet, approximately 535 feet below the crest of Carbon Mountain. The drill entry point elevation is about 7,183 feet, approximately 661 feet below the crest of Carbon Mountain. This proposed HDD method for boring through Carbon Mountain eliminates the very difficult (although not impossible) construction conditions associated with installation of the Northwest pipeline and the two MAPCO pipelines over the crest of Carbon Mountain.

The HDD method would also eliminate the presence of a massive construction scar down the ridge and slope of Carbon Mountain that would be visible from Durango if a conventional pipeline installation method were utilized.

2.4.2 Construction Access, Extra Work Space, and Off Right-of-Way Disposal Area

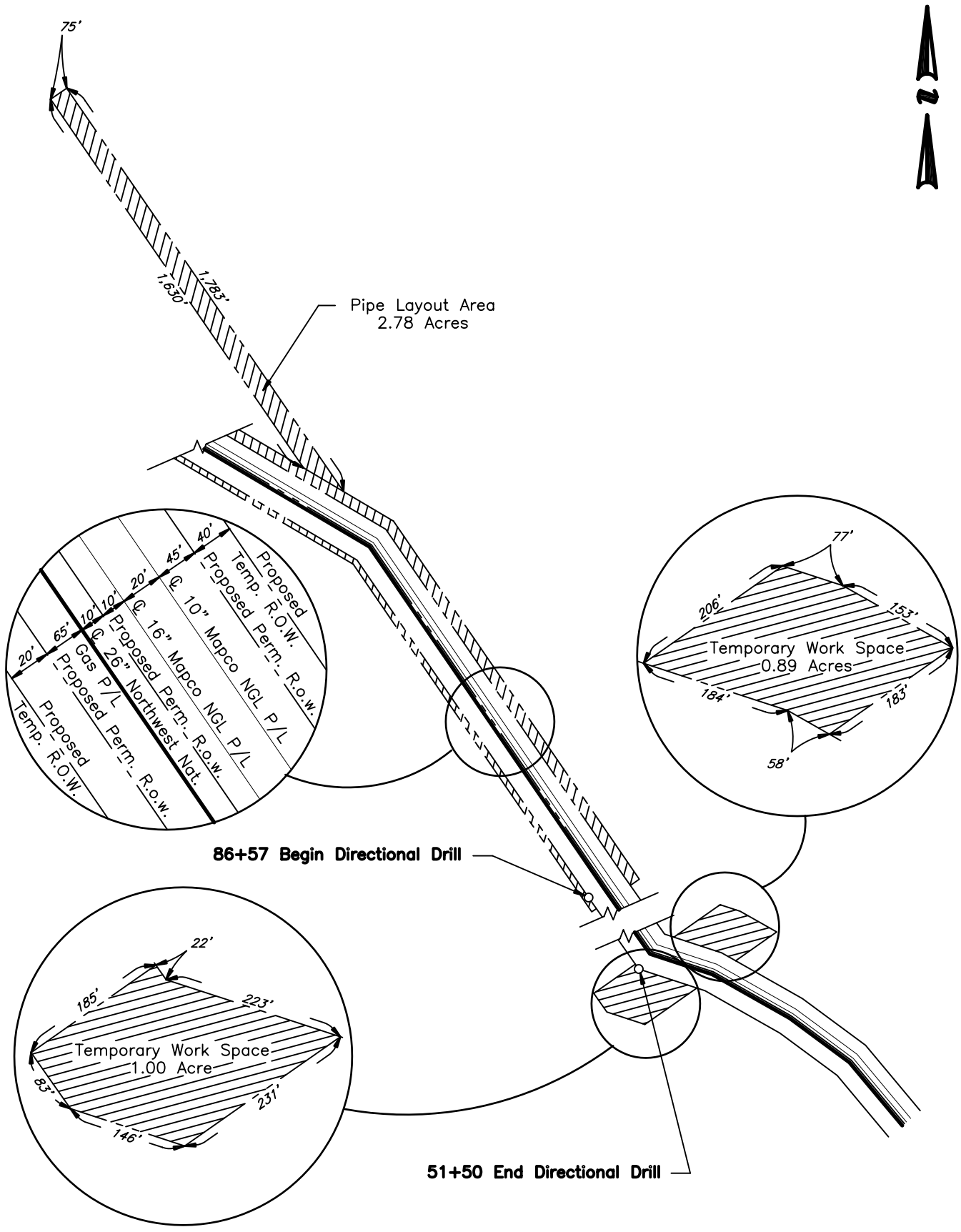
2.4.2.1 Northern Route

Reclamation has identified potential access roads that would be used during construction of the new pipelines along the northern route. Access to the proposed construction area is generally very good along most of the northern route alternative. CR 211 provides the main road access to the Ridges Basin area where the main construction staging area for the project would be located near the existing Bodo ranch house in the basin. A private road across Reclamation property provides access to the east tie-in point at MP 0.0.

Construction access from MP 0.0 to the proposed HDD site near MP 1.0 on the south side of Carbon Mountain would be along the construction right-of-way, although there is alternate access available up Carbon Mountain along an existing jeep road that can be used for vehicle access.

Access to the construction area on the north side of Carbon Mountain is provided from CR 211 and CR 212, which cross the northern route alignment at three locations – near MP 2.3 (CR 211) and near MPs 3.0 and 3.3 (CR 212). From MP 3.3, an existing private road on CDOW property provides access for vehicular traffic to approximate MP 6.0. The proposed west tie-in location for the northern route is located adjacent to an existing private road on Reclamation property that is accessed from County Road 141 (CR 141).

ANIMAS–LA PLATA PROJECT



DRAWN BY: MWC	Williams	
APPROVED:		
DATE: 04-16-02	CARBON MTN. DIRECTIONAL DRILLING DET.	FIGURE 2-4
SCALE: 1" = 500'	LA PLATA COUNTY, COLORADO	

Up to 40 feet of temporary additional space may be required in places along the northern route where greater access would be needed during construction.

Northwest and MAPCO have identified construction storage areas at the east and west tie-in locations, at the HDD entry and exit points, a location near the intersection of CR 211 and CR 212, and a location along CR 212 near MP 3.33.

In addition, Reclamation has identified a 40-acre site adjacent to the existing Bodo Ranch complex within Ridges Basin that could be used for a temporary staging area/contractor yard/fabrication yard. Part of this site would also be used as a borrow pit for excavation of bedding materials to be used during pipeline construction. The borrow pit would then receive waste rock from the HDD and other pipeline operations. The Ridges Basin Reservoir would eventually inundate this site. The pipeline companies would clean up construction debris in these areas and would maintain the area in a manner that no environmental pollution would occur upon reservoir filling. Reclamation would not require that Northwest or MAPCO complete restoration or revegetation of these areas since the areas would eventually be inundated by the reservoir.

Northwest's existing La Plata B Compressor Station ~~near its Ignacio Plant~~ (approximately 15 miles east of the project area) may be used by both Northwest and MAPCO for pipe staging and fabrication. The area used would be entirely within the existing compressor station complex.

2.4.2.2 Southern Route

Access to the southern route alternative is limited, with only two access points located along the alignment. The private road located on Reclamation property in Ridges Basin (mentioned above) would also provide access to the east tie-in for the southern route. From this beginning point at MP 0.0, there is no existing road access to the construction right-of-way until MP 4.2 located adjacent to CR 211. Therefore, construction access to essentially the entire length of the proposed southern route alignment is available only along the proposed construction right-of-way area. This very limited construction access condition complicates the performance of construction operations and the movement of workers, equipment, and materials to and from the job site.

The proposed southern route begins at MP 0.0 and almost immediately crosses Basin Creek at the base of Basin Mountain. Extensive extra workspace would be required to construct the pipelines along this alignment across the creek and up the steep rocky face of Basin Mountain to approximate MP 0.8. A relatively flat right-of-way area is encountered along the crest of Basin Mountain from MP 0.8 to approximate MP 1.1. The route then turns and extends down the face of Basin Mountain again to approximate MP 1.2. From MP 1.2 to approximate MP 3.9, the southern route crosses numerous steep cross slopes. Much of this section of the route crosses through areas of landslide activity and rock fall hazard areas. These steep side slope areas require more extensive right-of-way grading for the construction work area which means that considerably more extra work space area would be needed for storage of soil and rock materials during construction. The construction right-of-way area necessary for construction operations along these steep side slopes would be wider than for the northern route. This construction scar along the side slopes of Basin Mountain would be visible from the Ridges Basin Reservoir area and outside the Basin from a view shed off of County Road 140 (CR 140) to the south.

The steep slopes of Basin Mountain that are encountered along the proposed southern route from approximate MP 0.0 to MP 0.8 and from approximate MP 1.1 to MP 1.2 may require unconventional construction operations for placement of the pipelines on these very steep slope areas. If conventional operations were utilized, very extensive blasting and grading of the mountain contours would certainly create a massive construction scar down the face of Basin Mountain at these two locations. The steep

side slopes from approximate MP 1.2 to MP 3.9 would also create a massive scar due to the width of right-of-way required for typical construction operations in these steep side slope areas. Special construction operations may be necessary in order to stabilize the construction right-of-way work areas along the side slopes that cross landslide activity areas and rock falls. The construction right-of-way could be as wide as 225 to 275 feet for all three pipelines along this portion of the route (Mustang 2001).

Up to 85 feet of temporary additional space may be required in places along the southern route where greater access would be needed during construction.

Reclamation has identified a 40-acre site adjacent to the existing Bodo Ranch complex within Ridges Basin that could be used for a temporary staging area/contractor yard/fabrication yard. Part of this site would also be used as a borrow pit for excavation of bedding materials to be used during pipeline construction. The borrow pit would then receive waste rock from pipeline operations. The Ridges Basin Reservoir would eventually inundate this site. The pipeline companies would clean up construction debris in these areas and would maintain the area in a manner that no environmental pollution would occur upon reservoir filling. Reclamation would not require that Northwest or MAPCO complete restoration or revegetation of these areas since the areas would eventually be inundated by the reservoir.

Northwest's existing La Plata B Compressor Station ~~near its Ignacio Plant~~ (approximately 15 miles east of the project area) may be used by both Northwest and MAPCO for pipe staging and fabrication. The area used would be entirely within the existing compressor station complex.

2.5 LAND REQUIREMENTS

The three pipelines would be constructed within two adjacent 75-foot-wide permanent rights-of-way, totaling 150 feet in width. Typical right-of-way cross-sections are shown on figure 2-1. The full width of the right-of-way would be new disturbance (i.e., there would be no overlap of existing rights-of-way) for the entire length of the pipelines. In certain areas, extra construction workspace in temporary rights-of-way with up to 40 feet for the northern route and up to 85 feet for the southern route may be required to accommodate difficult terrain.

2.5.1 Northern Route

A total of approximately 199.57 acres would be temporarily disturbed by construction of the proposed pipelines along the northern route and removal of the old pipelines (see table 2-1). This total includes 124.36 acres within the 150-foot-wide permanent right-of-way for the relocation, 29.26 acres of extra work space for construction requirements on side slopes along the route and construction storage areas, 1.70 acres of staging area at the HDD pads on either side of Carbon Mountain, 0.25 acre for the construction of a new metering station, and 4.00 acres within the existing right-of-way used for pipeline removal. Also included are 40.00 acres for a temporary staging area/contractor yard/fabrication yard and for permanent rock disposal within Ridges Basin Reservoir.

In addition to this acreage, construction equipment would use approximately 10.3 miles of existing county roads and existing two-track roads for access (including approximately 2.6 miles of CR 212, 4.9 miles of CR 211, 1.1 miles of a Carbon Mountain two-track, 0.5 miles of two track road off CR 141, and 1.2 miles of two-track road in Ridges Basin). Some improvement to these existing roads would be required. Total mileage for the access roads outside the area of the future Ridges Basin Reservoir is approximately 6.3 miles, and inside the reservoir boundary is approximately 4.0 miles. Assuming an average width of 30 feet for access roads, approximately 37.45 acres of existing roads would be involved.

The permanent rights-of-way for the three pipelines would require 124.36 acres. In addition, the meter station would require 0.25 acre outside the permanent right-of-way.

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2.5.2 Southern Route

A total of approximately 166.73 acres would be disturbed by construction of the proposed pipelines along the southern route and removal of the old pipelines in Ridges Basin (see table 2-1). This total includes 78.18 acres within the permanent right-of-way for the relocation, 44.30 acres of extra work space for construction requirements on side slopes along the route, 0.25 acre for the construction of a new metering station, and 4.00 acres within the existing right-of-way used for pipeline removal. Also included are 40.00 acres for a temporary staging area/contractor yard/fabrication yard and for permanent rock disposal within Ridges Basin Reservoir.

The permanent rights-of-way for the three pipelines would require 78.18 acres. In addition, the meter station would require 0.25 acre outside the permanent right-of-way.

TABLE 2-1

Land Requirements for Northwest and MAPCO Pipeline Facilities

Route Alternative and Features	Right-of-way Width (feet)	Right-of-way Length (miles)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
Northern Route				
Permanent right-of-way	150	6.9	124.36	124.36
Extra Work		Var	29.26	0.00
HDD Staging Areas	N/A	N/A	1.70	0.00
Bodo Ranch Staging & Rock Disposal Site	N/A	N/A	40.00	0.00
Meter Station	N/A	N/A	0.25	0.25
Pipeline Removal	N/A	0.6	4.00	0.00
Total			199.57	124.61
Southern Route				
Permanent right-of-way		4.3	78.18	78.18
Extra Work		4.3		0.00
Bodo Ranch Staging & Rock Disposal Site	N/A	N/A	40.00	0.00
Meter Station	N/A	N/A	0.25	0.25
Pipeline Removal	N/A	0.6	4.00	0.00
Total				78.43